

### REMARKS

Claims 1-20 are pending in this application. Claims 1-14 have been amended in several particulars for purposes of clarity and brevity that are unrelated to patentability and prior art rejections while Claims 15-20 have been newly added in accordance with current Office policy, to further and alternatively define Applicants' disclosed invention and to assist the Examiner to expedite compact prosecution of the instant application.

Claim 8 has been objected to because of informalities. Accordingly, claim 8 has been amended to overcome the objection.

Claims 1-11 and 14 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Fairbairn, U.S. Patent Publication No. 2002/0155629, in view of Spence et al., U.S. Patent No. 6,106,659 and Komino, U.S. Patent No. 5,769,952 for reasons stated on pages 2-4 of the Office Action.

This rejection is respectfully traversed, however. Applicants respectfully submit that features of Applicants' claims 1-11 and 14 are not disclosed or suggested by Fairbairn '629, Spence '659 or Komino '952, whether taken individually or in combination. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection for the following reasons.

For purposes of expedition, base claims 1 and 8 have been amended, in addition to the combination of an etching unit, an ashing unit, a wetting unit and an integrated measuring instrument, to further define the "order of treatment" so that "the etched wafer is ashed and then subjected to the wetting treatment, or the etched wafer is wetted and then subjected to an ashing treatment, and afterwards,

the etched wafer is again measured by the integrated measuring instrument.” As amended, depending upon the treatment to be effected, it can be chosen whether the etched wafer is ashed and then subjected to wetting treatment, or the etched wafer is wetted and then subjected to ashing treatment. This feature enables Applicants’ claims 1 and 8 to advantageously avoid defects that, when ashing is effected previously, the protection film on a side wall of an element (structure) on the wafer is hardened, and the hardened film cannot be peeled at the wetting treatment effected thereafter, as described on page 14, lines 1-6 of Applicants’ specification.

In contrast to Applicants’ base claims 1 and 8, Fairbairn ‘629 discloses an apparatus, as shown in FIGs. 9A-9B, for monitoring and controlling critical dimensions of features formed on a wafer through feedback and feedforward of information gathered during in-process inspection of the features. As shown in FIG. 10, a sequence of steps used involves (1) transfer a wafer from cassette to CD measurement tool at block 1020; (2) measure CD and align wafer at block 1030; (3) select etch recipe based on CD measurement at block 1040; transfer the wafer to an etcher at block 1050; etch the wafer using selected etch recipe at block 1060; transfer the wafer to the measuring tool at block 1070; measure the CD of a feature on the wafer at block 1080; and then transfer the wafer back to the cassette at block 1090.

There is **no** disclosure from Fairbairn ‘629 of Applicants’ feature “depending upon an order of treatment, the etched wafer is ashed and then subjected to the wetting treatment, or the etched wafer is wetted and then subjected to an ashing treatment, and afterwards, the etched wafer is again measured by the integrated measuring instrument” as defined in each of Applicants’ base claims 1 and 8.

As secondary references, neither Spence '659 nor Komino '952 can remedy the noted deficiencies of Fairbairn '629 in order to arrive at the subject matter of Applicants' base claims 1 and 8. For example, Spence '659 is only cited for disclosing the use of moderate-to-high pressure plasma discharges for treating materials. Likewise, Komino '952 is only cited for disclosing the use of reduced pressure in a treatment chamber.

In order to establish a *prima facie* case of obviousness under 35 U.S.C. §103, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and **not** based on Applicants' disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP 2143. In other words, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination." ACS Hospital System, Inc v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). The Examiner must point to something in the prior art that suggests in some way a modification of a particular reference or a combination of references in order to arrive at Applicants' claimed invention. Absent such a showing, the

Examiner has improperly used Applicants' disclosure as an instruction book on how to reconstruct to the prior art to arrive at Applicants' claimed invention.

In the present situation, Fairbairn '629, Spence '659, and Komino '952 fail to disclose and suggest all features of Applicants' base claims 1 and 8. Therefore, Applicants respectfully request that the rejection of claims 1 and 8 and their respective dependent claims be withdrawn.

Claims 2-7 and 9-14 which depend from base claims 1 and 8, are deemed patentable from base claims 1 and 8, if their base claims 1 and 8 are patentable. Hartness Int'l, Inc., v. Simplicatic Eng'g Co., 891 F.2d 1100, 1108, 2 USPQ2d 1826, 1831 (Fed. Cir. 1987); In re Abele, 684 F.2d 909, 214 USPQ 682, 689 (CCPA 1982) see also In re Sernaker, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983). Even assuming *arguendo* that independent claims 1 and 8 are not patentable under 35 U.S.C. §103, which Applicants do not believe, claims 2-7 and 9-14 are separately patentable from parent claims 1 and 8 for reasons presented herein below.

For example, dependent claim 2 further defines the instrument measuring instrument is mounted at a position in a wafer alignment mechanism set under normal pressure to measure the form or size of an element to be formed on the wafer. This makes the apparatus more compact and enhances throughput. Neither Fairbairn '629, Spence '659, nor Komino '952 discloses or suggests the feature of Applicants' claim 2.

Dependent claim 3 further defines that the integrated measuring instrument is connected to the etching unit, via a depressurized transport passage, and the wafer is measured under reduced pressure. As a result, even if additional etching treatment is found necessary because of measurement of an etched wafer,

reduction of throughput can be prevented because an etching chamber is connected through depressurizable transport passage. This also can prevent corrosion due to exposure to the air after etching, as described on page 10, lines 7-22 of Applicants' specification. Again, neither Fairbairn '629, Spence '659, nor Komino '952 discloses or suggests the feature of Applicants' claim 3.

Dependent claim 4 further defines that the integrated measuring instrument is mounted on a load lock chamber. Again, this feature makes the apparatus compact and enhances throughput. Moreover, since it is unnecessary to convey wafer only for measurement, throughput can be further enhanced (e.g., the specification, page 11, lines 2-13). Again, neither Fairbairn '629, Spence '659, nor Komino '952 discloses or suggests the feature of Applicants' claim 4.

Claims 7 and 9 further define that, after processing of at least one of the wafers has been completed, the remaining wafers are processed one by one successively. This feature can minimize defective wafer generated by the processing (e.g., the specification, page 15, line 21 to page 16, line 6). Again, neither Fairbairn '629, Spence '659, nor Komino '952 discloses or suggests the feature of Applicants' claims 7 and 9.

In view of these reasons, Applicants respectfully submit that claims 2-7 and 9-14 are independently patentable over the Examiner's proposed combination of Fairbairn '629, Spence '659, and Komino '952.

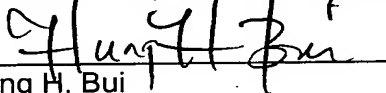
Lastly, claims 15-20 have been newly added to alternatively define Applicants' disclosed invention over the prior art of record. These claims are believed to be allowable at least for the same reasons discussed against all the outstanding rejections of the instant application. No fee is incurred by the addition of

claims 15-20.

In view of the foregoing amendments, arguments and remarks, all claims are deemed to be allowable and this application is believed to be in condition to be passed to issue. Should any questions remain unresolved, the Examiner is requested to telephone Applicants' attorney at the Washington DC area office at (703) 312-6600.

To the extent necessary, Applicants petition for an extension of time under 37 CFR §1.136. Please charge any shortage of fees due in connection with the filing of this paper, including extension of time fees, to the Deposit Account of Antonelli, Terry, Stout & Kraus, No. 01-2135 (Application No. 500.41253X00), and please credit any excess fees to said deposit account.

Respectfully submitted,  
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